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ABSTRACT

In fall 1979, the Business Department at Isothermal Community College established an Individualized Instruction Center (IIC) to enhance student success through the use of individualized, audiovisual, and tutorial methods. The IIC's staff, which consists of four full-time instructors, four paraprofessionals, three part-time clerical/technical assistants, and one full-time secretary, are committed to the philosophy of individualized instruction and concern for each student. Since 1980, all three quarters of a Principles of Accounting course have been offered at the IIC, with the following results: (1) course enrollment increased 5% in fall 1980, 104% in winter 1981, and 178% in spring 1981; (2) the failure and withdrawal rate dropped by 50%; (3) among the students who received a "P" grade (which permits students to continue a course the following term) in fall 1980, 40% received a grade of "A" or "B" by the end of the winter quarter; (4) five of the accounting students were able to complete all three quarters of the course in 6 months or less when allowed to advance at their own pace; (5) only 1.2% of the 426 students enrolled in the IIC accounting class during fall and winter quarters received a "C" or "D" grade, compared to 31% who earned a "C" or "D" in the traditional class during the 1979-80 academic year; and (6) the number of students earning a failing grade was 50% less under the audiovisual tutorial method than with the traditional method. Information on staff responsibilities and IIC costs is included. (HB)

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TEACHING ACCOUNTING THROUGH INNOVATIVE TECHNOLOGICAL MEANS CHALLENGES THE GIFTED AND RETAINS THE CAPABLE STUDENT

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ABSTRACT

Accounting taught through the traditional classroom has had the highest attrition rate of any course on our campus. In the summer of 1980, all accounting courses were moved into the Individualized Instruction Center and were taught through the use of audiovisual-tutorial materials. We have documented a lower failure rate and an increase in retention of students. Passing grades are higher, more students are completing the principles of accounting courses, and superior students advance more rapidly in the IIC, using the self-paced learning method, than in the traditional classroom structure.

JC 840 176

HISTORY OF THE

INDIVIDUALIZED INSTRUCTION CENTER

Isothermal Community College Business Department established an Individualized Instruction Center in the Fall of 1979. The establishment of this center has enabled the Business Department to offer through individualized instruction, rather than in the traditional classroom, a full range of top-quality courses on a continuous, flexible basis to a heterogeneous population. Our center provides for sound learning, creative teaching, and cost-effective administration.

The Center has created an environment that enriches the key elements in the learning process: motivated students, dedicated instructors, responsive educational environment, and systematic audio-visual learning materials. All of these elements help our college to achieve its goal -- the ultimate success of the student.

Since today's classrooms are filled with students from a wide range of backgrounds, ages, skills, abilities, and life styles, reaching our goal is even more challenging. The individualized, programmed courses that we offer use self-paced audiovisual materials designed to help instructors and students work within the framework of individual differences. The audio-visuals illustrate the lecture of each lesson while the students have a direct experience with the equipment and/or materials being used. This visual plus actual experience creates a better learning environment for the student. According to the data in Robert Poland's The Balance Sheet: "People forget 60 percent of everything after a half day. People remember --

10% of what they read
20% of what they hear
30% of what they see
70% of what they say
90% of what they say as they do something"

The Individualized Instruction Center provides for a visual, active learning experience. We have found the individualized, audiovisual, tutorial method to

be so successful that we have been able to increase our course offerings from seven in the Fall of 1979 to sixteen in the Fall of 1980. Our program serves as a model for the state of North Carolina and we have had a continuous stream of visitors from other colleges and high schools that have come from the states of North Carolina, Tennessee, South Carolina, Florida, New Jersey, Louisiana, Kentucky, Georgia, and Colorado.

GENERAL POPULATION TO BE SERVED
ETHNICITY OF STUDENTS

Associate Degree Programs	1979-80 M	%	F	%	Total	1980-81 M	%	F	%	Total
White	119	33.2	239	66.8	358	176	32.4	367	67.6	543
Black	67	29.1	163	70.9	230	16	18.6	70	81.7	86
Indian	1	50.0	1	50.0	2	0		0		0
Hispanic	1	50.0	1	50.0	2	0		0		0
Asian	1	50.0	1	50.0	2	1	50.0	1	50.0	2
Non-white	70	29.7	166	70.3	236	17	19.3	71	80.7	88
TOTAL	189	31.8	405	68.2	594	193	30.6	438	69.4	631

At the State level we do not have the ethnicity of students by program. The data shown is for all students enrolled in associate degree programs (technical) for each year.

ANNUAL UNDUPLICATED HEADCOUNT

PROGRAM	Year	Sex M	Sex F	Race W	Race N-W	Enrolled Full Time	Enrolled Part Time	Enrolled Not	Employed Part Time	Employed Full Time
Business Administration	1979-80	148	139	264	23	70	217	73	41	173
	1980-81	81	133	195	19	75	139	56	41	171
General Office	1979-80	2	81	68	15	21	62	27	17	39
	1980-81	0	88	63	25	24	64	36	15	37
Secretarial - Executive	1979-80	0	71	58	13	27	44	35	15	21
	1980-81	0	79	68	11	21	58	38	20	21

Comparable data for 1981-82 is not available at this time.

THE INDIVIDUALIZED INSTRUCTION CENTER STAFF

The staff must project a certain philosophy and concern for each student. The following concepts give a picture of a typical staff worker in our center:

1. Teachers must first see the overall picture and the philosophy of individualized instruction. What are the objectives? How does the teacher's role change?

2. Teachers must become familiar with the instructional materials, with the learning center equipment, and with the various areas of the learning center.

3. Teachers must become flexible in handling students who are at different levels of skill, with different goals, and with different objectives. All students will not be working on the same lesson on the same day, nor will all students cover all lessons.

4. Teachers must be flexible in all methods of teaching.

5. There must be consistency in enrollment, orientation procedures, completion procedures, and grading. Regular meetings of the staff can help to maintain this consistency.

6. Our goal is to enable our students to achieve competency levels either for second-year courses (for students in associate degree programs) or for immediate job entry (for students in diploma programs).

7. Most important are the "nitty-gritty" situations--the paperwork, the record keeping, the maintenance of the student traffic flow with no waiting. Students must be constantly monitored, evaluated, counseled, encouraged. The staff must always remember--no matter how busy we are--to keep the welcome sign out for the students.

The Individualized Instruction Center is staffed with four full-time instructors, four paraprofessionals, three part-time clerical/technical assistants, and one full-time secretary. The duties of each is as follows:

Instructor

1. Orientation
2. Pretesting and counseling
3. Instructs students one to one or in small groups
4. Diagnosis of individual problems
5. Writes and revises tests, course outlines, instructional materials, etc.
6. Prepares 20% reports
7. Grades tests

8. Works at the check-out testing counter as needed
9. Keeps up with each student's progress
10. Evaluation of students
11. In-Service Training

Paraprofessional: (Teaching Technician)

1. Works directly with students - teaching course content individually and in small groups
2. Administers tests
3. Assists in orienting students to individualized procedures and equipment
4. Grades and records test scores
5. Files tests and student materials
6. Assists instructors as directed
7. Keeps supplies and materials organized
8. Maintains equipment and machinery (reporting, cleaning, repairing)
9. Keeps area neat and orderly
10. Assists in keeping up with students' progress
11. Assists students with preregistration and registration
12. Assists in counseling students
13. Assists instructors with sponsoring student clubs

Clerical/Technical Assistant (Works at the check-out counter)

1. Administers tests
2. Grades tests or assists in the grading of tests
3. Records tests on the student's progress sheet, refiles the test copy, and files the student's test
4. Checks out materials to students
5. Keeps check-out counter supplies available
6. Answers the phone
7. Cleans equipment and reports needed repairs

ACADEMIC CONTENT

The academic content of the accounting courses is contained in the course outlines found at the end of this report.

AUDIOVISUAL TUTORIAL PROGRAM RESULTS

Immediately upon adding this new system to the Individualized Instruction Center, all three quarters of Principles of Accounting could be offered simultaneously each hour that the center is open. This means that 33 sections of the three courses comprising Principles of Accounting are now available each quarter, in contrast to three sections per quarter of one traditional course offered previously.

The flexibility of course offerings fits the students' needs more adequately than the limited offerings of the traditional classroom. Because of this flexibility in scheduling, our enrollment in this course increased 5% in the Fall quarter, 104% in the Winter quarter, and 178% in the Spring quarter, for an average of 69% for the 1980-81 academic year. The increase, compared to traditional classroom enrollment, confirms the importance to students of flexible scheduling and the self-paced study method available with audio-visual tutorial materials used in the Individualized Instruction Center. (See Figure A) The increased number of accounting students retained by Spring quarter is a very high rate. Both faculty and administrators are impressed with the higher enrollment figures. But because we consider the quality of education to be of utmost importance, we have attempted to compare the grades awarded in the traditional classroom for 1979-80 with the nontraditional audio visual tutorial Accounting grades received for 1980-81. (See Figure B) Improvements are marked: With audiovisual tutorial accounting, the failure and WP (withdrawal passing) rates dropped 50%. And among the best students, five first-quarter accounting students completed the three-quarter course in six months or less.

Helping Slower Students: Grade "P"

In addition to the standard grades of "A" through "F", we have adopted a "P" grade because we feel it is essential to extend the working time frame in individualized instruction beyond the calendar quarter. Students who normally would receive a grade of "C" or "D" in the classroom because of having to keep up with the group may now proceed at a slower pace, re-register, and continue in another quarter, increasing their competency and improving their grades.

Among students who received a "P" in the first quarter of Principles of Accounting in the Fall of 1980, 40% received a grade of "A" or "B" by the end of the Winter quarter. In the Fall quarter, 43 students earned "P" grades. In the Spring quarter, only 10 of those either had not completed the course or were still working on it. A few will be back to continue in the summer.

In the traditional classroom, if a student is unsuccessful in a course he or she may choose or be requested to repeat it. Instead of continuing (as in individualized instruction, with a "P"), the student must start over and again keep up with the class group.

Grades "A" and "B"

Our study shows that the "A" and "B" students score about the same with audiovisual tutorial accounting as in the classroom. The advantage of the individualized program is that the more capable students are able to advance to the next course without having to wait until the beginning of the next quarter. Five of our first-quarter accounting students completed three quarters of accounting in six months or less.

In the Winter quarter of 1980, 15 of the "A" and "B" grades were made by students who had received a "P" in the previous Fall quarter and were allowed to continue their work.

Traditional: Our "A" and "B" students do well in the classroom situation, but some are held back and not allowed to advance at their own pace. Other students could make an "A" or "B" if they were allowed to go slower than the classroom pace.

Grades "C" and "D"

Only four students out of 426 (1.2%) made a "C" or "D" in audiovisual tutorial accounting for the Fall and Winter quarters during 1980-81. In contrast, 78 out of 252 (31%) made a "C" or "D" in the traditional class for the 1979-80 academic year.

Traditional: In the traditional classroom, a student who earns a "C" or "D" moves on to the succeeding course with an obvious deficiency in accounting theory. In all probability the deficiency increases. These students, multiplying that deficiency, may finish with a "D" or "F", or they may drop out altogether. In the traditional classroom it is the "C" or "D" students, lacking adequate skills, who drop out or fail in subsequent quarters of accounting.

Grades "F" and "WP"

The number of students making "F" and "WP" (withdrawal passing) grades in the Fall of 1980 was 50% less under the audiovisual tutorial program than with traditional classroom accounting in the Fall quarter, 1979.

Traditional: There were 50% more failures in the traditional classroom in the Fall of 1979, compared to audiovisual tutorial, accounting individualized, self-paced program in the Fall of 1980.

COMPARISON OF ENROLLMENT
IN TRADITIONAL CLASSROOM TO INDIVIDUALIZED INSTRUCTION

This comparison was made between the traditional classroom in Fall, Winter, and Spring of 1979-1980 and the Individualized Instruction method of 1980-1981. This comparison relates to the number of students enrolled.

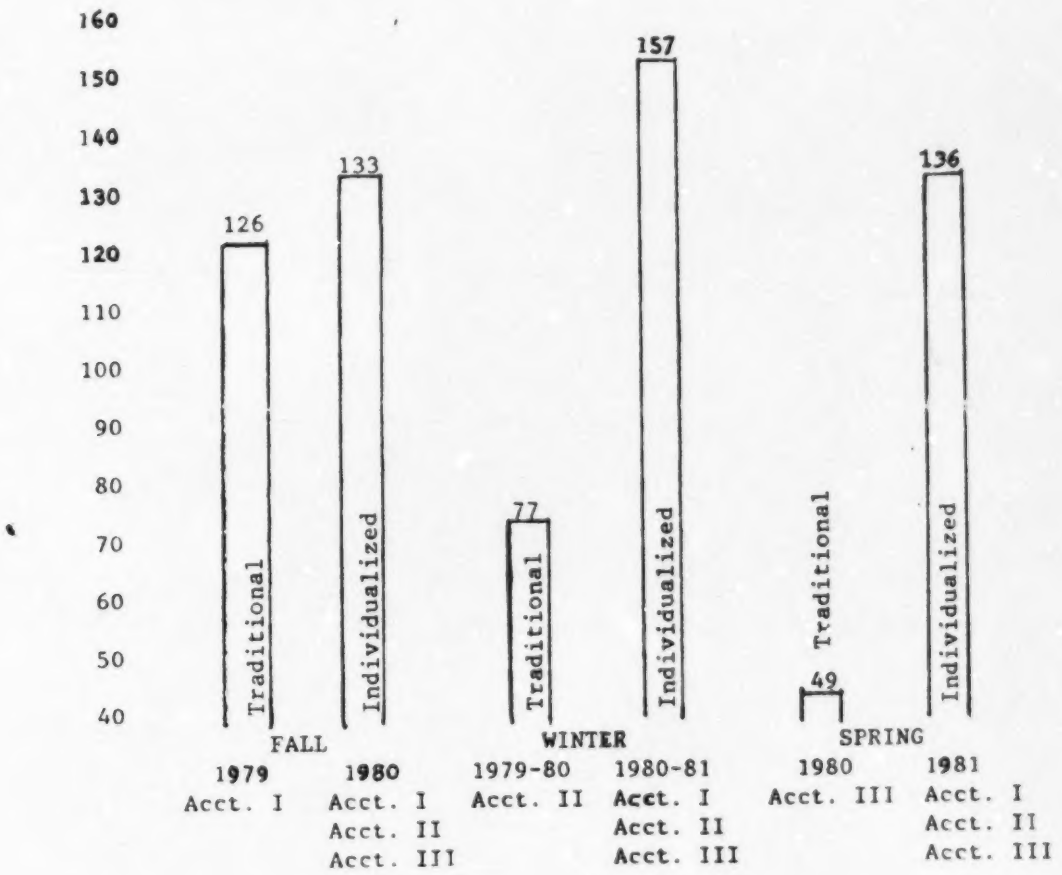
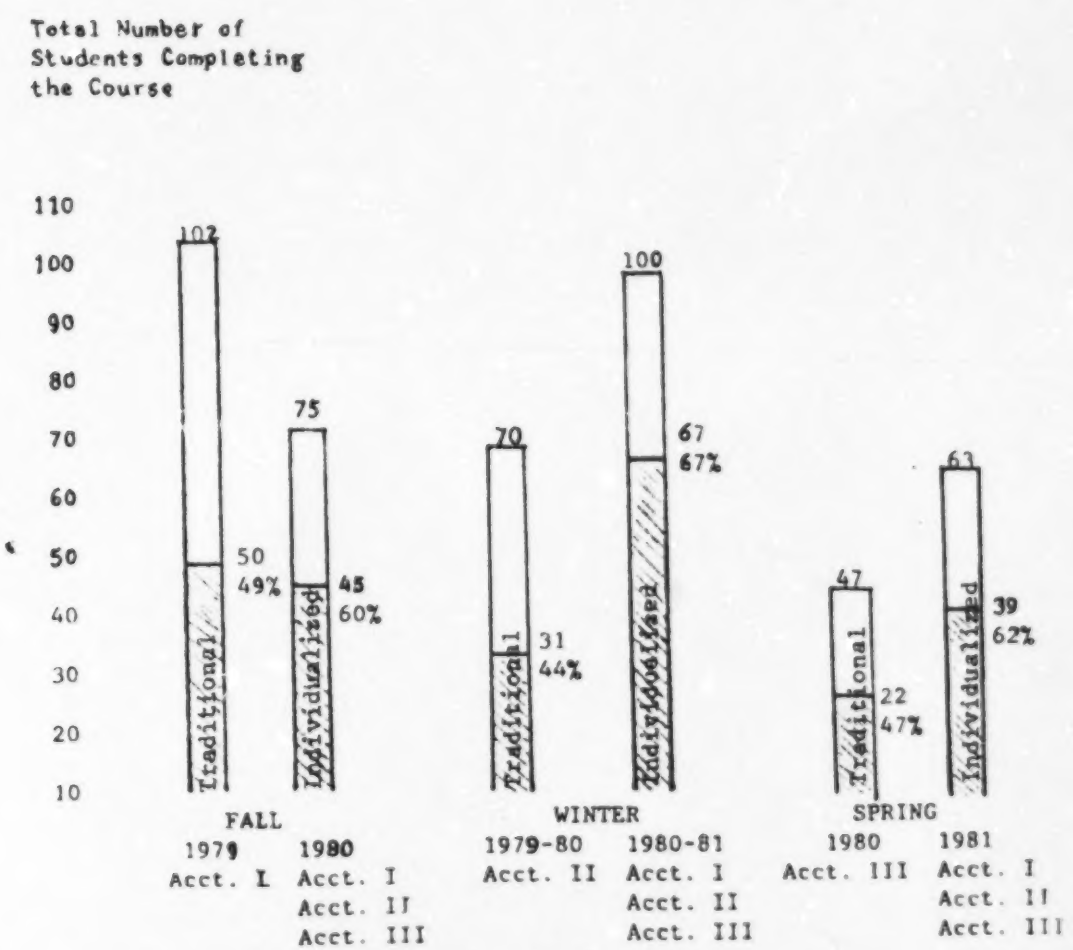


FIGURE A

COMPARISON OF "A" AND "B" GRADES
(AS A PERCENTAGE OF TOTAL COMPLETIONS)

Under traditional classroom structure, Accounting 0210 could be offered only in Fall quarter, Accounting 0211 only in Winter quarter, and Accounting 0212 only in Spring quarter.

With the Individualized Instruction method, all accounting courses could be offered simultaneously every quarter.



This comparison shows that students who made A's and B's as a percentage of all those who completed the courses.

FIGURE B

SECONDARY BENEFITS

Producing competent students through sound learning is our major goal, and individualized instruction enables us to achieve this goal by providing a method that allows students to master, in small steps, each topic before moving to the next. They repeat, review, and consult with the instructor as often as necessary until they master each learning block. The time frame for course completion is not tied to the quarter system. Some students finish before the quarter is over, while others may take more than one quarter. Thus, the course is designed around the performance needs and time requirements of the individual, oriented toward success rather than failure, and approximates the world of work.

Our teachers have additional time to be creative and responsive to the individual student. The slide/tape instruction frees the instructor from repetitious tasks to work creatively with each student. The instructor provides motivation and human interaction as helpers in a learning environment that encourages students to manage their own learning and take responsibility for their own growth and development.

The lab is cost-effective. By using the available space and equipment every hour, every quarter, maximum use is made of the equipment and space. Since individualization, the number of students in business courses has tripled, thus increasing our state funding base. We attribute this student gain to students' enthusiasm for audiovisual tutorial instruction, students' tendency to persist until completion of work, and the ability to schedule a multiplicity of courses over a broad period of time.

Once courses are individualized they can be offered every hour of each day on a basis of immediate entry. Prior to individualization, courses like Beginning Accounting was offered at three scheduled times solely as a Fall quarter course.

Since individualization, we have students coming at ten scheduled times every quarter in Accounting I, II, and III. By the same token, before individualization, many of our advanced business courses had to operate with a ratio of a few students to one instructor, thus being very costly to the college. Now if necessary without additional cost to the college an accounting course can be offered for as few as one student. Part-time instructor costs have been cut dramatically.

The Individualized Instruction Center at Isothermal Community College has been developed with the assistance of business and industrial leaders in the community in two phases. Phase I began in 1979-80 when the Business Department combined with the existing Individualized Instruction staff, to offer seven individualized business courses. (See Figure B) The initial, one-time cost for software, master carrels, and remolding was around $40,000.00. The student enrollment generated more funding from the state than expended. No cost increase for staff was necessary because we utilized the existing staff.

Since Phase I was so successful, Phase II began in 1980-81 by expanding the course offerings to sixteen courses. (See Figure C) Phase II began in 1980-81 by our converting two existing traditional classrooms to gain needed physical space to manage the increased student enrollment. The intitial one-time cost for additional software, master carrels, and remolding was approximately $38,000.00. At this point, to assure immediate individual help to the students and to provide the important aspect of daily feedback of graded work, an increase of 10% paraprofessional hourly help was employed.

The student enrollment has tripled with the addition of Phase II. The bulk of the continuing annual cost is the salary of the staff which is around $30,000.00 per quarter. Based on the funding from the state, we are earning by our enrollment four times more than the continuing cost each quarter. Our center is meeting the varied individual needs with top quality education in a cost-effective way.

COMPARISON OF TRADITIONAL VS. NONTRADITIONAL

Figure A:

Fall Quarter 1978-1979 - Traditional Classroom

Courses Offered	Sections	Students	Hours	FTE	Quarterly Earnings
Typing I	3	59	3,245	18.44	
Business Machines	1	2	88	.50	
Advanced Typing	2	12	660	3.75	
Machine Transcription	1	2	88	.50	
Totals	7	75	4,081	23.19	$23,000.00

Figure B: Phase I

Fall Quarter 1979-1980 - Nontraditional Classroom: Individualized Instruction

Courses Offered	Sections	Students	Hours	FTE	Quarterly Earnings
Typing I	11	138	7,590	43.13	
Typing II	11	16	880	5.00	
Typing III	11	5	275	1.56	
Business Machines	11	33	1,815	10.31	
Filing	11	11	363	2.06	
Advanced Typing	11	10	550	3.13	
Machine Transcription	11	2	154	.88	
Totals	77	215	11,627	66.07	$66,000.00

Figure C: Phase II

Fall Quarter 1980-1981 - Nontraditional Classroom: Individualized Instruction

Courses Offered	Sections	Students	Hours	FTE	Quarterly Earnings
Typing I	11	182	10,010	56.88	
Typing II	11	19	1,045	5.94	
Typing III	11	4	220	1.25	
Business Machines	11	21	1,155	6.56	
Filing	11	27	891	5.06	
Advanced Typing	11	3	165	.94	
Dictation & Transcription I	11	8	440	2.50	
Machine Transcription	11	2	110	.63	
Terminology & Transcription	11	6	198	1.13	
Medical Terminology	11	2	110	.63	
Stenoscript I	11	9	495	2.81	
Secretarial Procedures	11	2	110	.63	
Business Math	11	63	2,079	11.81	
Accounting I	11	118	5,572	31.66	
Accounting II	11	10	550	3.13	
Accounting III	11	2	110	.63	
Totals	176	478	23,260	132.19	$132,000.00

In October of 1982 our program received an award as an Outstanding Vocational Educational Program from the United States Department of Education. Copies of this certificate are also at the end of this report.

We feel that Individualized Instruction Center has been successful because we have had the cooperation of our college's administration, our business faculty, and the business and industrial leaders in the community. We think that all of these segments need to be in full cooperation with each other at other colleges in order for an Individualized Instruction Center such as ours to be a success.

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